Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A ~~nonresonant~~ micromachined gyroscope operated in a nonresonant mode comprising:

three interconnected masses;

a drive-mode oscillator; and

a sense-mode oscillator, where the drive-mode oscillator and sense-mode oscillators are dynamically mechanically decoupled and employ the three interconnected ~~proof~~ masses.

2. (currently amended) The ~~nonresonant~~ micromachined gyroscope of claim 1 wherein the drive-mode oscillator and sense-mode oscillator by means of their chosen design parameters ~~relating to coupling constants and mass~~ dynamically amplify movement in a drive direction and in a sense directions to achieve large oscillation amplitudes without resonance whereby increased bandwidth and reduced sensitivity to structural and thermal parameter fluctuations and damping changes results.

3. (currently amended) The ~~nonresonant~~ micromachined gyroscope of claim 1 wherein the drive-mode oscillator drives the three interconnected masses in a drive direction, wherein the sense-mode oscillator senses movement of two of the three interconnected masses in a sense direction, wherein at least one of the three ~~proof~~

masses is included in an intermediate mass and another one of the three ~~proof~~ masses is a sensing element, where the intermediate mass is larger than the sensing element, and wherein the drive-mode oscillator and sense-mode oscillator are dynamically mechanically decoupled in the drive direction from the sense direction, so that a Coriolis force generated by means of the larger intermediate mass results in a corresponding larger Coriolis force being transferred to the sensing element for increased ~~sensor~~ sensitivity.

4. (currently amended) The ~~nonresonant~~ micromachined gyroscope of claim 1 wherein the drive-mode oscillator and sense-mode oscillator include a drive means for driving a mass in a drive direction and a sense means for sensing motion of a mass in a sense direction, and wherein the three interconnected masses comprise a first mass, a second mass and a third mass, the first mass being the only mass directly excited by the drive means, the first mass oscillating in the drive direction and the first mass being constrained from movement in the sense direction, the second and third masses being constrained from movement with respect to each other in the drive direction and oscillating together in the drive direction but oscillating independently from each other in the sense direction, the third mass being fixed with respect to the second mass in the drive direction, but free to oscillate in the sense direction, the drive-mode oscillator comprising the first, ~~mass as a driven mass and~~ the second and third masses which collectively act as a passive mass ~~comprising the drive-mode oscillator~~, the second and third masses comprising the sense-mode oscillator.

5. (currently amended) The ~~nonresonant~~ micromachined gyroscope of claim 4 wherein the second mass oscillates in the drive and sense directions to generate a rotation-induced force that excites the sense-mode oscillator, and where a sense direction response of the third mass, which comprises a vibration absorber of the sense-mode oscillator, is detected for measuring an input angular rate.

6. (currently amended) The ~~nonresonant~~ micromachined gyroscope of claim 1 further comprising a substrate and wherein the three interconnected masses comprise a first mass, a second mass and a third mass, where the first mass is anchored to the substrate by a first flexure which allows movement substantially only in the drive direction, where the second mass is coupled to the first mass by a second flexure that allows movement in the drive and the sense directions, and where the third mass is coupled to the second mass by a third flexure which allows movement relative to the second mass substantially only in the sense direction, and

wherein the drive-mode oscillator and sense-mode oscillator comprise a drive means for driving the first mass, the second mass and the third mass in a drive direction, a sense means for sensing motion of the third mass in a sense direction, and a substrate on which the drive-mode oscillator and sense-mode oscillator are disposed.

7. (previously presented) The ~~nonresonant~~ micromachined gyroscope of claim 6 wherein the first, and third flexures are folded micromachined springs having a resiliency substantially in only a first ~~one~~ direction and wherein the second flexure is comprised of two coupled folded micromachined springs, one of the two coupled folded

micromachined springs ~~each~~ having a resiliency substantially in only one of ~~two different directions~~ the first or a second direction orthogonal to the first direction and the other one of the two coupled folded micromachined springs having a resiliency substantially in only the other one of the first or second directions.

8. (previously presented) The ~~nonresonant~~ micromachined gyroscope of claim 1 wherein the drive-mode oscillator and sense-mode oscillator are arranged and configured to each have a frequency response with two resonant peaks and a flat region between the peaks, the gyroscope being operated at a frequency in the flat regions of the frequency responses of the drive and sense-mode oscillators.

9. (currently amended) The ~~nonresonant~~ micromachined gyroscope of claim 8 wherein the drive-mode oscillator has a drive direction anti-resonance frequency, wherein the sense-mode oscillator has a sense direction anti-resonance frequency, and where the drive-mode oscillator and sense mode oscillator are arranged and configured to have matching drive and sense direction anti-resonance frequencies.

10. (currently amended) The ~~nonresonant~~ micromachined gyroscope of claim 1 wherein the three interconnected masses comprise a first mass, a second mass and a third mass and coupled flexures, where the first mass oscillates, the second and the third masses combining to comprise a vibration absorber of the drive-mode oscillator, which vibration absorber mechanically absorbs and amplifies the oscillations of the first mass and wherein the drive-mode oscillator and sense-mode oscillator comprise a drive

means for driving the first mass, the second mass and the third in a drive direction, and a sense means for sensing motion of the third mass in a sense direction.

11. (currently amended) The ~~nonresonant~~ micromachined gyroscope of claim 10 wherein the first mass is driven at a driving frequency, ω_{drive}, by means of a input force F_d, which driving frequency, ω_{drive}, is matched with a resonant frequency of an isolated passive mass-spring system comprised of the second and third masses and coupled flexures, which passive mass-spring system is in resonance with the first mass, so that maximum dynamic amplification is achieved.

12. (currently amended) The ~~nonresonant~~ micromachined gyroscope of claim 1 wherein the three interconnected masses comprise a first mass, a second mass and a third mass and coupled flexures, where the third mass absorbs vibrations of the sense-mode oscillator to achieve large sense direction oscillation amplitudes due to mechanical amplification and wherein the drive-mode oscillator and sense-mode oscillator comprise a drive means for driving the first mass, the second mass and the third mass in a drive direction, and a sense means for sensing motion of the third mass in a sense direction.

13. (currently amended) The ~~nonresonant~~ micromachined gyroscope of claim 12 where the third mass comprises an isolated passive mass-spring system and wherein a sinusoidal Coriolis force is applied to the second mass, and where the frequency of the sinusoidal Coriolis force is matched with a resonant frequency of the isolated passive

mass-spring system of the third mass and its coupled flexures, so that the third mass achieves maximum dynamic amplification.

14. (currently amended) The ~~nonresonant~~ micromachined gyroscope of claim 1 wherein the drive-mode oscillator comprise a drive means for driving three interconnected masses in a drive direction, and the sense-mode oscillator comprise ~~a drive means for driving a mass in a drive direction, and~~ a sense means for sensing motion of at least one of the three interconnected masses ~~a mass~~ in a sense direction, wherein the three interconnected masses comprise a first, second and third mass and ~~coupled~~ flexures coupled to each of the first, second and third masses, wherein the drive-mode oscillator and sense-mode oscillator each have a frequency response defined by a response curve, wherein the frequency response of both the drive-mode oscillator and sense-mode oscillator have two resonant peaks and a flat region of the response curve between the peaks, wherein both of the drive-mode oscillator and sense-mode oscillator are operated in the flat region of their response curves, where the second mass has a drive anti-resonance frequency, $\omega_{2x,}$ and the third mass has a sense anti-resonance frequency, $\omega_{3y,}$ and where the drive anti-resonance frequency, $\omega_{2x,}$ of the second mass and sense anti-resonance frequency, $\omega_{3y,}$ of the third mass are matched, namely where $\omega_{3y} = \omega_{2x}$, or equivalently $(k_{3y}/m_3)^{1/2} = (k_{2x}/(m_2 + m_3))^{1/2}$ determines optimal system parameters, together with the optimized ratios $\mu_x = (m_2 + m_3)/m_1$, $\gamma_x = \omega_{2x}/\omega_{1x}$, $\mu_y = m_3/m_2$, and $\gamma_y = \omega_{3y} / \omega_{2y,}$ where k_{3y} is the spring constant of the flexures coupled to the third mass, where m_3 is the magnitude of the third mass, k_{2x} is the spring constant of the flexures coupled to the second mass, m_2 is the magnitude

of the second mass, m_3 is the magnitude of the third mass, ω_{1x} is the drive anti-resonance frequency of the first mass, and ω_{2y} is the sense anti-resonance frequency of the second mass.

15. (currently amended) A method of nonresonantly operating a ~~nonresonant~~ micromachined gyroscope comprising:

driving a drive-mode oscillator with an applied force to define a first motion of the drive-mode oscillator;

driving a sense-mode oscillator with a Coriolis force derived from the drive-mode oscillator to define a second motion of the sense-mode oscillator; and

~~mechanically~~ decoupling the first motion of the drive-mode oscillator from the second motion of the ~~and~~ sense-mode oscillator.

16. (previously presented) The method of claim 15 wherein driving the drive-mode oscillator and driving the sense-mode oscillator dynamically amplifies motion in the drive and sense directions to achieve large oscillation amplitudes without resonance to result in increased bandwidth and reduced sensitivity to structural and thermal parameter fluctuations and damping changes.

17. (currently amended) The method of claim 15 where mechanically decoupling the drive-mode oscillator and sense-mode oscillators comprises:

mechanically decoupling the drive-mode oscillator and sense-mode oscillators in the drive direction from the sense direction; and

exciting a sense mass in the sense-mode oscillator by a force which is arises from an intermediate mass employed in both the drive-mode and sense mode oscillators,

where the intermediate mass is a substantially larger mass than the sense mass, resulting increased ~~sensor~~ sensitivity.

18. (currently amended) The method of claim 15 wherein driving the drive-mode oscillator comprises driving a first, second and third mass in a drive direction and driving the sense-mode oscillator comprises driving second and third a mass ~~in a drive direction and sensing motion of a mass~~ in a sense direction, ~~and wherein the drive-mode oscillator and the sense-mode oscillator comprise three interconnected masses namely a first mass, a second mass and a third mass,~~ exciting the first mass only by a drive means, oscillating the first mass in the drive direction with a driving force and constraining movement of the first mass from ~~in~~ the sense direction, constraining movement of the second and third masses with respect to each other from ~~in~~ the drive direction, oscillating the second and third masses together in the drive direction but oscillating the second and third masses independently from each other in the sense direction, the third mass being fixed with respect to the second mass in the drive direction, oscillating the third mass in the sense direction~~, the first mass as a driven mass and the second and third masses collectively as a passive mass comprising the drive-mode oscillator, the second and third masses comprising the sense-mode oscillator~~.

19. (previously presented) The method of claim 18 wherein oscillating the second mass in the drive and sense directions generates a rotation-induced force that excites the sense-mode oscillator, and detecting a sense direction response of the third mass, which comprises a vibration absorber of the sense-mode oscillator for measuring an input angular rate.

20. (currently amended) The method of claim 15 wherein the three interconnected masses comprise a first mass, a second mass and a third mass, and wherein the drive-mode oscillator comprises a drive means for driving a mass in a drive direction and the sense-mode oscillator comprises ~~a drive means for driving the first mass, the second mass and the third mass in a drive direction,~~ a sense means for sensing motion of the third mass in a sense direction, and a substrate on which the drive-mode oscillator and sense-mode oscillator are disposed, further comprising anchoring the first mass to the substrate by a first flexure and moving the first mass substantially only in the drive direction, moving the second mass coupled to the first mass by means of transferring force through a second flexure in the drive and the sense directions, and moving the third mass coupled to the second mass by means of transferring force through a third flexure substantially only in the sense direction.

21. (currently amended) The method of claim 20 where anchoring the first mass comprises ~~further comprising~~ coupling the first~~, second and third~~ mass~~es~~ by the first ~~and third~~ flexure~~s~~ to the substrate by coupling the first mass using a ~~providing~~ folded micromachined spring~~s~~ having a resiliency substantially in only one direction ~~second~~

~~and third~~ and where moving the third mass comprises coupling the third mass to the second mass by coupling the third mass using ~~by~~ the second flexure which is comprised of two coupled folded micromachined springs, ~~each having a resiliency substantially in only one of two different directions~~ one of the two coupled folded micromachined springs having a resiliency substantially in only one of the first or a second direction orthogonal to the first direction and the other one of the two coupled folded micromachined springs having a resiliency substantially in only the other one of the first or second directions.

22. (previously presented) The method of claim 15 wherein driving the drive-mode oscillator and driving sense-mode oscillator comprises operating the gyroscope in flat regions of response curves of the drive and sense-mode oscillators between two resonant peaks.

23. (previously presented) The method of claim 22 further comprising matching an anti-resonance drive frequency of the drive-mode oscillator with an anti-resonance sense frequency of the sense-mode oscillator.

24. (previously presented) The method of claim 15 wherein the three interconnected masses comprise a first mass, a second mass and a third mass and coupled flexures, the second and the third masses combining to comprise a vibration absorber of the drive-mode oscillator, further comprising mechanically absorbing and amplifying the oscillations of the first mass by means of the vibration absorber and wherein the drive-

mode oscillator and sense-mode oscillator comprise a drive means for driving the first mass, the second mass and the third in a drive direction, and a sense means for sensing motion of the third mass in a sense direction.

25. (original) The method of claim 24 further comprising driving the first mass at a driving frequency, ω_{drive}, by means of a input force F_d, matching the driving frequency, ω_{drive}, with a resonant frequency of an isolated passive mass-spring system comprised of the second and third masses and coupled flexures, and moving the passive mass-spring system in resonance with the first mass, so that maximum dynamic amplification is achieved.

26. (currently amended) The method of claim 15 wherein driving the drive-mode oscillator comprises driving three interconnected masses in a drive direction and driving the sense-mode oscillator comprises ~~driving a drive mass in a drive direction, and~~ sensing motion of at least one of the three interconnected masses a ~~sense mass~~ in a sense direction ~~respectively~~, and wherein driving the drive-mode oscillator comprises driving three interconnected masses in a drive direction and driving the sense-mode oscillator comprises mechanically amplifying sense direction oscillation amplitudes in one of the three interconnected masses ~~with the sense a third mass~~ acting as the vibration absorber in the sense-mode oscillator.

27. (currently amended) The method of claim 26 wherein the three interconnected masses include a first, second and third mass and further comprising applying a

sinusoidal Coriolis force to the ~~a~~ second mass, and matching the frequency of the sinusoidal Coriolis force with a resonant frequency of an isolated passive mass-spring system comprised of the third mass and its coupled flexures, so that the third mass achieves maximum dynamic amplification.

28. (currently amended) The method of claim 15 wherein driving the drive-mode oscillator comprises driving a first, second and third mass in a drive direction and driving the sense-mode oscillator comprises driving the second mass in a sense direction ~~driving a mass in a drive direction~~, and sensing motion of ~~a~~ the third mass in ~~a~~ the sense direction, wherein the drive-mode oscillator and sense-mode oscillator each have a frequency response defined by a response curve, wherein the frequency response of both the drive-mode oscillator and sense-mode oscillator have two resonant peaks and a flat region of the response curve between the peaks, operating both the drive-mode oscillator and sense-mode oscillator in the flat region of their response curves, , where the second mass has a drive anti-resonance frequency, $\omega_{2x,}$ and the third mass has a sense anti-resonance frequency, $\omega_{3y,}$ and matching the drive anti-resonance frequency, $\omega_{2x,}$ of the second mass and sense anti-resonance frequency, $\omega_{3y,}$ of the third mass, namely setting $\omega_{3y} = \omega_{2x}$, or equivalently $(k_{3y}/m_3)^{1/2} = (k_{2x}/(m_2 + m_3))^{1/2}$ and determining therefrom optimal system parameters, together with the optimized ratios $\mu_x = (m_2 + m_3)/m_1$, $\gamma_x = \omega_{2x}/\omega_{1x}$, $\mu_y = m_3/m_2$, and $\gamma_y = \omega_{3y} / \omega_{2y,}$ where k_{3y} is the spring constant of the flexures coupled to the third mass, where m_3 is the magnitude of the third mass, k_{2x} is the spring constant of the flexures coupled to the second mass, m_2 is the magnitude of the second mass, m_3 is the magnitude of the third

mass, ω_{1x} is the drive anti-resonance frequency of the first mass, and ω_{2y} is the sense anti-resonance frequency of the second mass.